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THE
LAW OF HUMAN INCREASE.

BY ✓

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By NATHAN ALLEN, M. D., LL. D.

IT is almost one hundred years since the attention of T. R. Malthus was first called to the subject of population and its changes. As his views have had more influence than any other writer, it is well to notice briefly what they were. His leading principle is, that "population, when unchecked, increases in a geometrical ratio, while subsistence increases only in an arithmetical ratio." He held that "population is necessarily limited by the means of subsistence," and "invariably increases where those means increase, unless prevented by some very powerful and obvious check." He divides these checks into two classes, the positive and the preventive: among the former are wars, famine, diseases of all kinds, unhealthy occupations, extreme poverty, great cities, etc.; and in the latter class are abstinence from marriage and sexual intercourse, from considerations of prudence. The last class come more directly under the control of human agency.

The next writer of any note was Thomas Doubleday, who published in 1840 a work with this title: "The True Law of Population shown to be connected with the Food of the People." The term "true law" was undoubtedly introduced in opposition to the doctrine of Malthus. Doubleday attempted to demonstrate that "wherever a species or genus is endangered, a corresponding effort is invariably made by Nature for its preservation and continuance, by an increase of fecundity or fertility; and that this especially takes place whenever such danger arises from a diminution of proper nourishment," and that consequently "the deplethoric state is favorable to fertility." Thus, "there is in all societies a constant increase going on among that portion of it which is the class worst supplied with food—in short, among the poorest."

The April number of the "Westminster Review" for 1852 contained an elaborate essay by Herbert Spencer, introducing a "New Theory of Population," deduced from the general law of animal fertility. He "maintained that an antagonism exists between individualism and reproduction; that matter in its lower forms, for instance, of

vegetables, possesses a stronger power of increase than in all higher forms; that the capacity of reproduction in animals is in an inverse ratio to their individuation; that the ability to maintain individual life and that of multiplication vary in the same manner also, and that this ability is measured by the development of the nervous system."

Fourier and some French writers have advanced the idea that "just in proportion as individuals become advanced in civilization, in the same proportion the race inclines to run out"; but whether this depends upon some change in physiological laws, or upon the influence of external agents, we are not informed. In establishing any law or general principle, it is highly important to understand distinctly what this principle is and its basis. During the present century, the above-named persons are almost the only writers who have proposed anything like a general law or principle to guide the growth and changes of population.

The principle laid down by Herbert Spencer is the only one based strictly upon physiology. All the discussions and views of Malthus and Doubleday depend mainly upon food, climate, government, state of society, epidemics, war, etc. They make the leading factors, the primary agents in all these changes, outside, and in a great measure independent, of the body. It would seem more consistent with common sense, and all natural phenomena, that the law which governs the existence, growth, and changes of a living being should have its basis and development in that same organization. From observation and analogy, we believe such a doctrine exists throughout the whole animal and vegetable creation. The truth of this principle is strikingly illustrated in the changes that have taken place in domestic animals. The human system can not be made an exception to a universal principle.

This law of increase or propagation—the most important of all laws—must, in the very nature of things, be inherent in the body; must be incorporated into its very existence, though in its operations it may be affected by extraneous causes and influences. However powerful may be the effect of climate, food, and other external agents upon the application or working of this law, whether to impede, thwart, or modify its operation, the law must exist, we believe, in the body itself, and in a great measure control it. The various changes to which the human body is subjected, can not happen by chance or accident; neither can the causes be dissimilar or contradictory in different nations and races; neither can they radically change or vary from one generation to another. Universality and unchangeableness must characterize such a law. The reason why correct principles have not been brought to bear more directly upon the growth and changes of population is, that the principles of physiology were not formerly understood. The science was scarcely known at the time when

Malthus and Doubleday published their works, that is, the principles of the science in many of their most practical applications. In fact, it may safely be said that some of these principles, as far as their application is concerned, are still in their infancy. One of the most interesting and important of these applications will be found, we believe, in establishing a general law of human increase.

After many years of study, observation, and reflection, we have been led to believe that there is such a law, and propose to submit some of the facts and arguments upon which this belief is based. As the subject is so vast and complicated, a large volume would be required to discuss it properly ; we can present here only a few points or heads of topics, by way of argument and illustration. In order to present a clear and connected view in a short paper, few quotations or references will be given.

What, then, is the briefest definition that can be given of this law? *It consists in the perfectionism of structure and harmony of function* ; or, in other words, that every organ in the body should be perfect in its structure, and that each should perform its legitimate function in harmony with all others. Though this perfect physical organization is nowhere to be found in nature, we can readily conceive of such a standard, and that there may be all manner of approximations toward it. The nearer this standard is reached, the more completely the law of propagation will be carried out. Such a basis harmonizes with the great fundamental or general laws of Nature, as we find that they are all based upon the highest or most perfect development of her works. Any other basis or lower standard would reflect upon the Creator of all things, and interfere with the harmony and order which exist in Nature's operations. Thus, in reference to every organ in the human body, there is such a thing as a normal, perfect structure, and, wherever this exists, they constitute a perfect model or standard for the whole system. All diseases interfere at once with the operations of this law, especially those that are considered hereditary. This class of diseases changes with each generation, and sometimes becomes so intensified that they impair the vitality and strength of the system to such an extent as to prevent propagation. There is a class of diseases or weaknesses, described under the head of "sterility," "barrenness," and "impotence," from which strong evidence may be deduced in proof of a general law of increase.

There is a law in physiology, favorable to this theory, described by Dr. Carpenter thus : "There is a certain antagonism between the nutritive and reproductive functions, the one being exercised at the expense of the other. The reproductive apparatus derives the materials of its operations through the nutritive system and its functions. If, therefore, it is in a state of excessive activity, it will necessarily draw off from the individual fabric some portion of aliment destined for its maintenance. It may be universally observed that, when the

nutritive functions are particularly active in supporting the individual, the reproductive system is undeveloped, and *vice versa*."

Let, therefore, on this principle, any class of organs or any parts of the body be unduly or very much exercised, it requires the more nutrition to support them, thereby withdrawing what should go to other organs. In accordance with this physiological law, if any class of organs become predominant in their development, it conflicts with this great law of increase. In other words, if the organization is carried by successive generations to an extreme, that is, to a high nervous temperament—a predominance of the brain and nervous system—or, on the other hand, to a lymphatic temperament—a predominance of the mere animal nature—it operates unfavorably upon the increase of progeny. Accordingly, in the highest states of refinement, culture, and civilization of a people, the tendency has always been to run out in offspring; while, on the other hand, all tribes and races sunk in the lowest stages of barbarism, and controlled principally by their animal nature, do not abound in offspring, and in the course of time they tend also to run out. The truth of both these statements is confirmed by history. The same general fact has been observed among all the abnormal classes, such as idiots, cretins, the insane, the blind, the deaf and dumb, and to some extent, with extreme or abnormal organizations, such as are excessively corpulent or spare, as well as of unnatural size, either very large or diminutively small.

It would seem that Nature herself is bound to put an end to organizations that are monstrous, that are defective, and abnormal or unnatural or imperfect in any respect. All history, we believe, proves that such organizations are not prolific in offspring, and the number of this class born into the world, reaching an advanced age, is comparatively not large. Such facts would indicate that there must be a general law of propagation that aims at a higher or more perfect standard.

If this principle is applied to distinct classes in society, some striking illustrations may be obtained. Take the families belonging to the nobility, the aristocracy, or the most select circles, where by inheritance, refinement, and culture the nervous temperament has become very predominant, it is found that such families do not increase from generation to generation in offspring, and not unfrequently, in time, they become extinct.

A similar result has also followed the intermarriage of relations, from the fact that the same weaknesses or predispositions are intensified by this alliance. On the other hand, in case these relations have healthy, well-balanced organizations—it may be that they are cousins—they will abound with healthy offspring, and the stock may improve, and not deteriorate, from the mere fact of relationship.

Again, if we take those families and races which for several generations have steadily increased most, we shall find that, as a whole,

they possess a remarkably healthy, well-balanced organization. Illustrations of this type we shall find abound most among the middling or working classes of the German, the English, the Scotch, the Irish, and the Americans. The strictly native New-Englanders are, in some respects, an exception, and require a more particular notice. During the last century the colonists of New England, made up mostly of English stock, multiplied rapidly. So great was their natural increase that they doubled in numbers in less than twenty-five years. Malthus regarded them as the best specimens, in this respect, of any people or race, and based upon facts from this source his great principle of population. But a most surprising change has taken place within one hundred years with this same people. From records carefully kept, it appears that the average number of children to each family has decreased with every generation; that they commenced with large families—averaging eight or nine—but it is now doubtful whether the average will exceed three children to a family, scarcely enough to keep the original stock good in numbers. This change has occurred in the same places, with the same people, having the same climate and plenty of food. Making allowance for the “arts of destruction and prevention” which may exist to some extent, we do not see how this great decrease in birth-rate can be accounted for, except by some change in physical organization. The first settlers of New England were remarkably healthy—had well-balanced organizations—and this fact was true of the women as well as of the men. But a great change in this respect has taken place. The men are not so strong and vigorous as their grandfathers and ancestors, and the women have deteriorated physically in a surprising degree. A majority of them have a predominance of nerve-tissue, with weak muscles and digestive organs. The most marked change in this one hundred years, in organization, is this loss of balance or harmony in the organs, and especially in women it is far more striking. They have been diverging more and more from that normal standard upon which the law of propagation is based.

There is only one other people or race where there has been such a natural decrease in numbers—that is the Sandwich-Islanders. Once they were a strong and robust people. In 1830, when the first census was taken—which was ten years after the American missionaries commenced their labors—the population was 130,000, but by the last census there were only about 40,000, one third as many as fifty years ago. In the mean time religious institutions have been introduced, education has become general, and the family as an institution has been established. All the elements of a Christian civilization have been thoroughly established, but still the population has been steadily decreasing at the rate of about one thousand each year. How can this be explained? It can not be from the want of food, nor a well-regulated society, nor change in climate, nor want of a good government; there have been no wars, no famine, and only two or

three epidemics, which were quite limited. The cause of this loss of population can not arise from any external condition or agents, but from some law growing out of and governing the physical system. It is well known that certain diseases, resulting from licentiousness and intemperance, have been brought by foreigners to these islands, causing a physical degeneracy in the people. So powerful and far-reaching are the effects of these diseases that neither the family, nor education, nor Christianity, can eradicate them. The law of propagation has been violated to such an extent that it threatens the extinction of that people.

The laws of hereditary descent afford strong evidence in favor of some general law of propagation. The fact that "like begets like," subject to certain variations and conditions, can not be called in question. The union of two agents, possessing similar and dissimilar qualities, constitutes an important condition to which this law of propagation is subject. While it may be difficult to point out, in all cases, the exact results of hereditary influences, still it has been demonstrated on a large scale that, in the aggregate, there was the most unquestionable evidence of such agency, and that it was minute and extensive, and continued for successive generations. Now, the same evidence that proves the existence of hereditary agency, implies that there is somewhere a general law, of which each and every part of this agency is part and parcel; and no one thing will throw so much light upon this whole subject of inheritance as the recognition of a general law of propagation, based upon a perfect standard in nature. Without such acknowledgment, all these hereditary agencies are an enigma. When this branch of physiology becomes thoroughly understood, hereditary influences will more readily be traced back to their primary sources, as well as to the secondary causes which serve at times to change and modify them. In this case, far more intelligent and efficient means will be employed to improve the race.

Again: powerful arguments in favor of this theory of increase may be deduced from woman's organization. It is a settled fact that the primary organism of her nature is the production of children—that by this course her average health is better, and the mean duration of life is longer. Hence there must be one type or standard of organization better adapted for this purpose than all others. We maintain that the perfect structure of her whole body and the harmony of function in every organ constitute this normal standard of increase. The truth of this assertion, we believe, can be demonstrated from four distinct points—all most intimately connected with human increase: 1. In case of pregnancy a woman with this organization suffers the least. It is well known that this change frequently brings on many complaints, and sometimes serious diseases. The more the body or certain organs deviate from the normal standard, the greater the disturbance and suffering. 2. At the time of confinement, or in the process of de-

livery, a woman with this organization suffers less—passes through all its stages safer, and recovers from its effects quicker and better—than those having any kind of a different organization. 3. In the matter of nursing offspring, which constitutes a very important part of child-bearing, this healthy, well-balanced organization is very necessary. The fact that only about one half of the New England women can properly nurse their offspring is very significant of some change of organization—that there is a failure in the development of the mammary glands and the requisite power of the digestive organs—and this incapacity for nursing is constantly increasing. And, in the fourth place, the difference in the physical character of offspring is very significant. This is determined in a great measure by that of the mother. The more healthy and perfect her organization, and the better the balance of all her organs, the sounder and the more perfect will be the development of her offspring. The health and life of the child demand it.

This theory of human increase derives strong evidence from an analogous law in the animal and vegetable kingdoms. It is well known that great improvements have been made within the present century in domestic animals, and this, too, by the application of physiological laws. To such an extent have the results of observation and experiment been here carried, that this process of change and improvement has been reduced almost to a science. The terms here used—"pure blood," "thorough-bred," "pedigree," "breeding in-and-in," and "cross-breeding"—may all be explained by two great leading principles. One is a general law of propagation, based upon a perfect standard; and the other is the law of inheritance, subject to certain conditions. The three first-named terms have originated more from an observance or carrying out the first law—breeding from the best stock; but the two latter terms depend more upon the effects of inheritance. The results of the experiments in improving domestic stock indicate clearly that there must be some settled rules or laws in the process; and, if so, is there not some great general law governing and controlling all others? A similar law of propagation exists in vegetable physiology. It is a fact well attested by gardeners that, in order to produce flowers and fruit, the soil must not be too rich nor too poor; if the plant or tree grows too luxuriously, its branches or roots must be pruned; while, on the other hand, if unthrifty, it must receive better culture and its roots be enriched before it will become fruitful. It is well understood by gardeners that, in order to raise the best fruit and vegetables, the fairest and best-looking seed must be selected. So in setting out plants and trees the best-looking and well-balanced specimens are always selected. Other facts and illustrations might be cited from this source to prove that some general law governed in the growth and changes of organic life.

Again, arguments in favor of a general law of increase may be de-

duced from three other important points in physiology. Where do we find the highest measure or the most perfect health? It is in this same normal standard of physiology, and the nearest approaches to it. In some respects the human body resembles a complicated machine: the more perfect the structure, and the more nicely adjusted are all the parts of the machinery, the less likely is any one part to get out of order. And when one part, however small it may be, gives out or breaks, it at once involves the other parts, all of which must more or less suffer. Thus the individual, the family, the people which possess by nature the soundest and best-balanced organizations, will have, other things being equal, the greatest aggregate amount of health. Not only this, but they will secure the longest lives. This same standard of physiology, then, affords the material upon which the law of longevity is based. A careful examination of the organization of all those persons who reach a great age, we believe, will demonstrate that they naturally possessed a remarkably healthy and evenly balanced constitution.

Again, whenever physical standards of human excellence or models of the best specimens of the race have been sought or adduced, they have exhibited this harmonious development. The Apollo Belvedere and the Venus de' Medici represent a beautiful symmetrical organization; and, the nearer all parts of the body approximate to this standard, the greater is the attraction and the more beautiful the form. If there is a form or type of organization in the human species more beautiful than any other, is not this the model, the standard? We believe the Creator of all things has established in physiology such a standard of taste and beauty, and that this same normal standard, upon which the law of increase is based, comprises that beautiful form or standard of taste for the human body which, it has been admitted, existed, but is nowhere well defined.

Again, arguments in favor of this theory of increase may be deduced from the writings of Charles Darwin. Two of his leading doctrines are "natural selection" and the "law of variability." The former doctrine may be defined thus: There is an inherent principle in nature, amid all its laws and changes, for betterment, for improvement. The same result has been found out from long experience, that the character of domestic animals can be improved by selecting the most desirable qualities and by avoiding all that conflict with these. This principle is most strikingly manifested in all organic beings in their constant "struggle for existence," and is happily expressed in the phrase often used by some writers, the "survival of the fittest." We believe this same principle not only harmonizes with, but is nothing more nor less than a great general law of increase, based upon the perfectionism of all organization and harmony of function; and what are denominated "laws of variation" may be explained by the laws of hereditary descent. When we take into consideration the fact that

the true law of propagation is based upon a perfect standard in nature, all changes or deviations from that standard or model result from what are properly called laws of inheritance. With this explanation it will be seen at once that a wide and varied field is laid open for their operations, dependent not only on the body itself, but upon external agencies and conditions. But the question arises, Why this "natural selection," why this "struggle for existence," and why the "survival of the fittest"? Do they not arise from a universal law in nature which gives to those possessing this organization in the highest degree the advantage over others?

What is this inherent principle in nature ever aspiring for betterment or improvement? What are the secret forces everywhere predisposing in this direction? Is there not some general, universal law incorporated into organic life which favors such qualities? As this law is primarily based upon a higher or perfect standard, all its inherent or predisposing forces have an upward or improving tendency. Thus all who are so fortunate as to possess an organization of higher grade or better than others have certain advantages. In this way the doctrine of natural selection may be readily understood and the survival of the fittest.

This general law, applicable to all organic beings, resembles in some respects that principle found in the human system called *vis medicatrix*. It was early discovered by physicians that in case any part or organ in the body became injured or diseased there was a surprising recuperative power in nature of healing or curing. All the sound parts of the body seem to conspire together to help the part or organ affected. This influence to assist seems spontaneous and always healthful. So it is with this law of propagation—it is not only conservative, but improving to all possessing more than an average share of the inherent forces of this law.

Connected with this law of population there are several points worthy of most careful consideration. While it possesses a sure and permanent foundation, there are a flexibility, an elasticity, which are self-regulating, and display a divine wisdom and power. Such is the nature of this law that, in all its varied operations, it does not interfere with the choice and free agency of man. When the character of this law is fully understood, what on the one hand are the penalties attached to the violation of any part of it, and, on the other hand, what are the rewards for its observance, it presents to man the strongest possible motives for his own improvement and the advancement of human happiness generally. If man is created a free moral agent, accountable for all his acts, the law providing for the propagating of the species should certainly be of such a character that he can clearly understand its nature and sanctions. According to those theories on population where its increase and changes depend mainly upon external agents, man is made, in a great measure, a mere passive

agent, having but little control or responsibility in all those important matters.

If the theory here advanced is the true law of human increase, it is not a mere theory or an abstract general principle, but is capable of almost endless application, far more than can be enumerated. It will enable us to understand far better the nature of man, his duties and responsibilities in relation to himself, to the family, to society at large, and particularly to his Maker. It will furnish us a guide or great principle by which certain practices and fashions in society, certain modes of education, systems of morals, acts of legislation, etc., can be tested. It will throw new light upon what constitutes the true grounds of human progress and the real sources of an advancing civilization.

In closing this paper, it may be proper to state briefly what are the elements, or what is understood to constitute this law of population. *It is based upon a perfect development of all the organs of the human body, so that there shall be a perfect harmony in the performance of all their respective functions.* It presupposes that other conditions are favorable, such as the age, the union, and the adaptation of the married parties—provided no natural laws are violated or interfered with—there will uniformly be found with such an organization, not only the greatest number of children, but they will be endowed with the highest amount of physical vigor, strength, and health. We should also expect the best development of all parts of the brain, giving balance and symmetry to all mental qualities, whether social, intellectual, or moral. It should be further added that, inasmuch as perfect standards are not found, the nearer this normal standard of physiology is approached by all parties concerned, the more complete will be found the fulfillment of this law.



